AMENDMENTS TO THE CLAIMS

A detailed listing of all claims that are, or were, in the present application, irrespective of whether the claim(s) remain(s) under examination in the application is presented below. The claims are presented in ascending order and each includes one status identifier. Those claims not cancelled or withdrawn but amended by the current amendment utilize the following notations for amendment: 1. deleted matter is shown by strikethrough for six or more characters and double brackets for five or fewer characters; and 2. added matter is shown by underlining.

1. (Previously Presented) A device for determining a movement of an eye, comprising:

an illumination unit, which generates optical radiation during operation and emits it as an illumination ray bundle for illumination of at least one region on the cornea of the eye;

a distance-determining unit, which senses, in a temporally resolved manner, the illumination ray bundle returned by the cornea as a detection ray bundle and generates a distance signal using the received optical radiation of the detection ray bundle, said signal corresponding to a distance of the cornea from a reference plane, which is defined relative to the distance-determining unit; and

an evaluating unit which, using said distance signal, generates a position or movement signal corresponding to a position or movement of the eye;

illumination optics for focusing the illumination ray bundle for at least one wavelength in a predetermined range of possible positions of the cornea; and

wherein the distance-determining unit performs confocal imaging and comprises:

detection optics,

a small-aperture stop arranged following said detection optics and located in a stop plane, and

a detection unit arranged following said aperture stop for detecting a part of the detection ray bundle having passed the small-aperture stop,

wherein the stop plane is conjugated with an object plane associated with the wavelength, said object plane being located in a range of possible positions of the cornea.

2. (Previously Presented) The device as claimed in Claim 1, wherein the illumination unit is provided such that a diameter of the illumination ray bundle on the cornea of the eye arranged in front of the device is between 2 μm and 20 μm during operation.

3.-7. (Cancelled)

8. (Previously Presented) The device as claimed in Claim 1, wherein the position of the illumination and/or detection optics and/or of the aperture stop and/or the focal length of the illumination and/or detection optics and/or the position of the illuminated spot can be changed by means of a drive.

9. (Previously Presented) The device as claimed in Claim 1, wherein optical radiation of different wavelengths can be emitted by the illumination unit, and ray bundle forming optics of the illumination unit, the illumination optics and/or the detection optics are dispersive by a predetermined degree.

10. (Previously Presented) The device as claimed in Claim 1, wherein the illumination unit emits optical radiation in at least two different spectral ranges.

11. (Previously Presented) The device as claimed in Claim 1, wherein the illumination unit comprises a source of radiation for emitting optical radiation in a predetermined spectral range.

12. (Previously Presented) The device as claimed in Claim 1, wherein the detection detects the part of the detection ray bundle having passed the small-aperture stop.

13. (Previously Presented) The device as claimed in Claim 10, wherein the detection unit detects part of the detection ray bundle having passed behind the small-aperture stop in a manner timed with the change of the spectral ranges of the illumination ray bundles.

14. (Previously Presented) The device as claimed in Claim 1, wherein the illumination optics and the detection optics share a common objective.

15. (Previously Presented) The device as claimed in Claim 14, wherein the common objective has a predetermined longitudinal chromatic aberration above the Rayleigh length of the illumination ray bundle.

16. (Previously Presented) The device as claimed in Claim 1, comprising at least one illumination unit, which emits two illumination ray bundles and which illuminates two different areas on the cornea of the eye, and comprising at least one distance-determining unit, which receives, in a temporally resolved manner, detection ray bundles reflected by said two areas on the cornea and generates distance signals corresponding to distances of the cornea from two reference planes, said reference planes each being defined for one of the detection ray bundles relative to the distance-determining unit and the evaluating unit evaluating the distance signals

and generating position or movement signals which correspond to a position or movement of the eye in two spatial directions.

17. (Previously Presented) The device as claimed in Claim 1, comprising at least one illumination unit, which emits three illumination ray bundles, which illuminate three different areas forming the corners of a triangle on the cornea of the eye, and comprising at least one distance-determining unit, which receives, in a temporally resolved manner, detection ray bundles reflected by said three areas on the cornea and generates distance signals corresponding to distances of the cornea from three reference planes, said reference planes each being defined for one of the detection ray bundles relative to the distance-determining unit and the evaluating unit evaluating the distance signals and generating position or movement signals which correspond to a position or movement of the eye in three spatial directions.

Claims 18-34 (Cancelled).

35. (Withdrawn-Currently Amended) A method of determining a movement of an eye comprising the steps of:

radiating optical radiation from an illumination unit onto at least one region on the cornea of the eye as an illumination ray bundle;

generating distance signals with a distance-determining unit, the distance signals corresponding to the distance of the cornea from a predetermined reference plane defined

relative to the distance-determining unit in a temporally resolved manner, using ~~the~~ optical radiation from the illumination bundle returned by the cornea as detection ray bundles;

generating position or movement signals corresponding to a position or movement of the eye from the distance signals with an evaluating unit;

focusing the illumination ray bundle for at least one wavelength into a predetermined range of possible positions of the cornea with illumination optics;

performing confocal imaging by focusing the detection ray bundle through detection optics of the distance determining unit into [[the]] a region of a small-aperture stop located in a stop plane following the detection optics, said stop plane being conjugated with an object plane which is associated with the wavelength and which lies in a predetermined range of possible positions of the cornea;

detecting part of the detection ray bundle that passes the small-aperture stop with a detection unit; and

generating the distance signal by detection of the optical radiation passing through the small-aperture stop.

36. (Withdrawn) The method as claimed in Claim 35, wherein the illumination ray bundle has a diameter of between 2 μm and 20 μm at the cornea.

37.-41. Cancelled

42. (Withdrawn) The method as claimed in Claim 35, wherein the range of possible distances of the cornea from the reference plane is scanned by changing the distance between the object plane and the small-aperture stop.

43. (Withdrawn) The method as claimed in Claim 35, wherein optical radiation of different wavelengths is used, and the illumination and/or detection ray bundle is guided through at least one strongly dispersive optical functional element.

44. (Withdrawn) The method as claimed in Claim 35, wherein illumination ray bundles with optical radiation in at least two different spectral ranges are alternately used in a predetermined time sequence.

45. (Withdrawn) The method as claimed in Claim 35, wherein the illumination ray bundle comprises optical radiation in a spectral range of 400 nm to 1700 nm.

46. (Withdrawn) The method as claimed in Claim 43, wherein the intensity of the detection ray bundle behind the small-aperture stop is detected in a spectrally and temporally resolved manner.

47. (Withdrawn) The method as claimed in Claim 44, wherein the intensity of the detection ray bundle behind the small-aperture stop is detected in a manner timed with the change of the spectral ranges of the illumination ray bundles.

48. (Withdrawn) The method as claimed in Claim 35, wherein the illumination ray bundle is radiated onto an area of the cornea at an angle of incidence of less than ten degrees.

49. (Withdrawn) The method as claimed in Claim 35, wherein the illumination ray bundle is radiated onto an area of the cornea at an angle of incidence of less than five degrees.

50. (Withdrawn) The method as claimed in Claim 35, further comprising the step of illuminating at least two different areas on the cornea by at least two different illumination ray bundles;

generating distance signals relating to the distances of the cornea from corresponding predetermined reference planes in a temporally resolved manner, using the optical radiation respectively returned by the cornea as detection ray bundles; and

generating position or movement signals relating to a position or movement of the eye in at least two spatial directions on the basis of said distance signals.

51. (Withdrawn) The method as claimed in Claim 35, further comprising the steps of:

illuminating at least three different areas on the cornea forming corners of a triangle by at least three different illumination ray bundles;

generating distance signals relating to the distances of the cornea from corresponding, predetermined reference planes in a temporally resolved manner, using the optical radiation respectively returned by the cornea as detection ray bundles; and

generating position or movement signals relating to a position or movement of the eye in at least three spatial directions on the basis of said distance signals.

52. (Withdrawn) The method as claimed in Claim 35, further comprising the steps of guiding illumination and detection radiation over the eye synchronously with a therapeutic beam.

53. (Currently Amended ) A device for determining a position of an element of an eye, comprising:

an illumination unit, which generates optical radiation during operation and emits it as an illumination ray bundle for illumination of at least one region on the element of the eye;

a distance-determining unit, which senses, in a temporally resolved manner, the illumination ray bundle returned by the element of the eye as a detection ray bundle and generates a distance signal using the received optical radiation of the detection ray bundle, said distance signal corresponding to a distance of the element of the eye from a reference plane, which is defined relative to the distance-determining unit;

an evaluating unit which, using said distance signal, generates a position signal corresponding to the position of the element of the eye, and

illumination optics for focusing the illumination ray bundle for at least one wavelength in a predetermined range of possible positions of the element of the eye and wherein the distance-determining unit performs confocal imaging and comprises detection optics, a small-aperture stop arranged following said detection optics and located in a stop plane, and a detection unit arranged following said aperture stop for detecting a part of the detection ray bundle having

passed the small-aperture stop, wherein the stop plane is conjugated with an object plane associated with the wavelength, said object plane being located in a range of possible positions of the cornea;

wherein the detection unit detects the part of the detection ray bundle having passed the small-aperture stop spectrally and temporally resolved; and

wherein the detection unit detects the part of the detection ray bundle having passed the small-aperture stop in a manner timed with the change of the spectral ranges of the illumination ray bundles.

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54. (Previously Presented) The device as claimed in Claim 53, wherein the position of the illumination and/or detection optics and/or of the aperture stop and/or the focal length of the illumination and/or detection optics and/or the position of the illuminated spot can be changed by means of a drive.

55. (Currently Amended) ~~The device as claimed in Claim 53,~~ A device for determining a position of an element of an eye, comprising:

an illumination unit, which generates optical radiation during operation and emits it as an illumination ray bundle for illumination of at least one region on the element of the eye;

a distance-determining unit, which senses, in a temporally resolved manner, the illumination ray bundle returned by the element of the eye as a detection ray bundle and generates a distance signal using the received optical radiation of the detection ray bundle, said

distance signal corresponding to a distance of the element of the eye from a reference plane, which is defined relative to the distance-determining unit;

an evaluating unit which, using said distance signal, generates a position signal corresponding to the position of the element of the eye, and

illumination optics for focusing the illumination ray bundle for at least one wavelength in a predetermined range of possible positions of the element of the eye and wherein the distance-determining unit performs confocal imaging and comprises detection optics, a small-aperture stop arranged following said detection optics and located in a stop plane, and a detection unit arranged following said aperture stop for detecting a part of the detection ray bundle having passed the small-aperture stop, wherein the stop plane is conjugated with an object plane associated with the wavelength, said object plane being located in a range of possible positions of the cornea;

wherein optical radiation of different wavelengths can be emitted by the illumination unit, and ray bundle forming optics of the illumination unit, the illumination optics and/or the detection optics are dispersive by a predetermined degree; and

wherein the illumination optics and the detection optics share a common objective; and

wherein the common objective has a predetermined longitudinal chromatic aberration above the Rayleigh length of the illumination ray bundle.

56. (Previously Presented) The device as claimed in Claim 53, wherein the illumination unit emits optical radiation in at least two different spectral ranges.

57. (Previously Presented) The device as claimed in Claim 53, wherein the illumination unit comprises a source of radiation for emitting optical radiation in a predetermined spectral range.

58.-61 (Cancelled)